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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Robert Vincent

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EXAMINER

RIGGS II, LARRY D

ART UNIT

PAPER NUMBER

1631

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/762,952	VINCENT, ROBERT	
	Examiner	Art Unit	
	LARRY D. RIGGS II	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 94-111 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 94-111 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's amendments filed 28 October 2009 are acknowledged and entered.

Status of Claims

Claims 20-93 are cancelled. Claims 1-19 and 94-111 are currently pending and under consideration.

Terminal Disclaimer

The terminal disclaimer filed on 01 December 2009 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Number 11/499,288 and Patent Number 7,132,254 has been reviewed and is NOT accepted.

An attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

It would be acceptable for a person, other than a recognized officer, to sign a terminal disclaimer, provided the record for the application includes a statement that the person is empowered to sign terminal disclaimers and/or act on behalf of the organization.

Accordingly, a new terminal disclaimer which includes the above empowerment statement will be considered to be signed by an appropriate official of the assignee. A separately filed paper referencing the previously filed terminal disclaimer and containing a proper empowerment statement would also be acceptable.

Withdrawn Rejections/Objections

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The instant rejection is newly applied with current art of record and new art of record.

Claims 1-5, 94, 96, 97, 105, 109 and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turdukulov (Masters Thesis, International Institute for Geo-

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Information Science and Earth Observation Enschede, The Netherlands), 2003, 1-78 in view of Subramaniam et al. (Deep-Sea Research II, 2002, 49, 107-121).

The instant claims provide a method of determining the approximate amount bacteria in water from light reflected therefrom, comprising the steps of obtaining measurements of reflected light from the water using a light measurement device and applying an algorithm using a microprocessor relating three wavelength ranges and the light amount to determine the amount of bacteria in the water.

Regarding claims 1, 2, 5, 96, 97 Turdukulov shows measurement of reflected light from water over wavelength ranges of 500-800 nanometers (page 62, Appendix B) and shows organic suspended matter (OSM) concentrations, that includes pathogenic bacteria, such as coliform and E.coli, (page 2, 14, 67, Figures 2.5, D4; Jamieson et al. below). Turdukulov teaches use of a light measuring device at pp. 7, 8 and 59-60. Software for determining contaminants in water is taught on pp. 8 and 43, thereby suggesting a microprocessor.

Regarding claim 3, Turdukulov shows the relationship between total suspended matter (TSM) and volume of reflectance is a linear relationship, wherein $OSM (mg/l) = TSM - ISM$ (inorganic suspended matter), (pages 2, 11-12, Equations 2.1 and 2.2).

Regarding claim 4, Turdukulov shows measurement of reflected light from water over wavelength ranges of 500-800 nanometers (page 62, Appendix B; Thorlabs DET110 silicon detector, below).

Regarding claims 94, 105, 109 and 110, Turdukulov shows measurement of reflected light from water over wavelength ranges of 500-800 nanometers (page 62,

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Appendix B) and shows organic suspended matter (OSM) concentrations, that includes pathogenic bacteria, such as coliform bacteria, i.e. E.coli, (page 2, 14, 67, Figures 2.5, D4), wherein the measurements are obtained by Landsat TM satellite of Dutch lakes, (page 62).

Turdukulov et al. does not show determining an amount of bacteria from the water.

Subramaniam et al. shows a multispectral classification scheme to detect cyanobacteria in satellite data, SeaWiFS imagery, even in waters as optically complex as South Atlantic Bight, (abstract). Subramaniam et al. shows optical modeling incorporating reflectance data at multiple wavelengths and the amount of light detected, (pages 109-110, Table 1), SeaWiFS image data, (page 111) and a classification scheme to determine an amount of cyanobacteria in the water based on chlorophyll concentrations, (pages 116-117; Figures 2 and 4).

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to modify the method of quantifying water quality parameters such as OSM such as remote imaging spectrometry by Turdukulov et al. with utilizing the satellite imagery and algorithms to detect bacteria of Subramaniam et al. because Subramaniam et al. determines the amount of cyanobacteria in water based on the same range of spectral ranges (Subramaniam et al., Figure 2), that Turdukulov et al. uses for identifying TSM concentrations, which in turn correlate to OSM concentrations, concentrations of TSM correlates to OSM calculation that encompasses pathogenic

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bacteria, i.e. coliform and E.coli (Turdukulov et al.; page v, last paragraph, page 2, last paragraph; pages 22-23, paragraph 3.3.1).

Response to Arguments

Applicant's arguments filed 28 October 2009 have been fully considered but they are not persuasive.

Applicant argues that Turdukulov does not show determining an amount of bacteria from water. Applicant argues that Subramaniam et al. only shows a presence of cyanobacteria, unlike the instant invention that determine an approximate amount of coliform in water.

This is not persuasive. In response to the argument that Turdukulov does not determine an amount of bacteria in water, Subramaniam et al. determines concentrations of cyanobacteria in water based on MEASURED chlorophyll concentrations (see above).

Double Patenting

The terminal disclaimers filed 28 October 2009 were not approved on 01 December 2009. See above. As the terminal disclaimers have not been approved, nor have the claims been amended to overcome the rejection, the current double patenting rejection is maintained.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims

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are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-19 and 94-111 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 7,132,254. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions detect bacteria from light reflected off the surface of water using LANDSSAT TM band 3, 4 and 5 and encompass some of the same frequency ranges.

Claims 1-19 and 94-111 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 18-43 of copending Application No. 11/499288. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions detect bacteria from light reflected off the surface of water using LANDSSAT TM band 3, 4 and 5 and encompass some of the same frequency ranges.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LARRY D. RIGGS II whose telephone number is (571)270-3062. The examiner can normally be reached on Monday-Thursday, 7:30AM-5:00PM, ALT. Friday, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LDR/

Larry Riggs

Examiner, Art Unit 1631

/Marjorie Moran/

Supervisory Patent Examiner, Art Unit 1631